CLAIMS

What is claimed is:

1. An apparatus for printing pages of a print job, comprising:

a page analyzer operative to identify static page aspects and variable page aspects from page data within a print job;

a converting apparatus communicating with the page analyzer and operative to convert the static page aspects into static page layout objects and the variable page aspects into variable print data;

an identifying apparatus communicating with the converting apparatus and operative to identify the static page layout objects in the manner allowing for an optimized form to be created, and to allow for appropriate merging with the variable print data;

an optimizer apparatus communicating with the identifying apparatus and operative to convert the static page layout objects to an optimized form;

a storage apparatus communicating with the optimizer apparatus and operative to store at least one instantiation of the static page layout objects in the optimized form; and

a merging apparatus communicating with the storing apparatus and operative to merge the static page layout objects with the variable print data to create merged print data.

2. The apparatus of claim 1 wherein the page analyzer resides within a printer.

3. The apparatus of claim 1 wherein the page analyzer resides within a printer server.

4. The apparatus of claim 1 wherein the optimizer apparatus removes the static page layout objects that are not in an optimized form during the converting activity in order to recover memory.

5. The apparatus of claim 1 wherein the merging apparatus includes a static page buffer and a variable page buffer, the static page buffer capable of receiving raster print data for the optimized form of the static page layout objects, and the variable page buffer operative to receive raster print data for the variable print data.

6. The apparatus of claim 5 wherein the merging apparatus is further operative to convert the optimized form of the static page layout objects stored in the storage apparatus to a raster form, and to convert the variable print data to a raster form, the merging apparatus further operative to initialize the static page buffer with the optimized form of the static page layout objects in the raster form and thereafter to merge the optimized form of the static page layout objects with the variable print data by transmitting the variable print data in the raster form to the variable page buffer.

7. The apparatus of claim 1 wherein the static page aspects comprise static image elements.

8. The apparatus of claim 1 wherein the static page layout objects comprise forms.

9. The apparatus of claim 8 wherein a processed form comprises at least one layer.

10. A page printing apparatus, comprising:
a page analyzer operative to identify at least one static page aspect and at least one variable page aspect within a print job;
a converting apparatus communicating with the page analyzer and operative to convert the static page aspect into a static layer and the variable page aspect into a variable layer;

Case 10990654-1

7   an identifying apparatus communicating with the converting

8 apparatus and operative to identify the static layer in the manner allowing for an

9 optimized form to be created, and to allow for appropriate merging with the

10 variable layer;

11   an optimizer apparatus communicating with the identifying

12 apparatus and operative to convert the static layer to an optimized form;

13   a storage apparatus communicating with the optimizer apparatus

14 and operative to store at least one instantiation of the static layer in the

15 optimized form; and

16   a merging apparatus communicating with the storing apparatus

17 and operative to merge the static layer with the variable layer to create merged

18 print data.

1   11.   The page printing apparatus of claim 10 wherein the static

2 layer is formed from static page layout objects.

1   12.   The page printing apparatus of claim 10 wherein the

2 variable layer is formed from variable print data.

1   13.   The page printing apparatus of claim 10 where each of the

2 static layer and the variable layer comprise a process collection of page layout

3 objects including one or more of images, graphics, and text represented in a

4 page description language.

1   14.   The page printing apparatus of claim 10 wherein the storage

2 apparatus is configured to store the static layer for re-use by caching the static

3 layer within the storage apparatus.

1   15.   A method for printing pages of a print job, comprising:

2   analyzing pages of a print job for static page aspects and variable

3 page aspects;

Case 10990654-1

4   creating print data by converting at least one instantiation of the

5   static page aspects into static page layout objects, and converting the variable

6   page aspects into variable print data;

7   identifying the static page layout objects in a manner allowing for

8   an optimized form to be created, and to allow for appropriate merging with the

9   variable print data;

10   converting the static page layout objects to an optimized form;

11   storing at least one instantiation of the static page layout objects in

12   the optimized form;

13   merging the static page layout objects with the variable print data

14   to create appropriately merged print data; and

15   printing the merged print data.

1   16.   The method of claim 15 wherein the step of merging

2   comprises:

3   converting the static page layout objects to a raster form;

4   converting the variable print data to a raster form;

5   initializing a buffer device with the raster form of the static page

6   layout objects; and

7   transmitting the raster form of the static page layout objects to the

8   buffer device.

1   17.   The method of claim 15 further including removing the

2   static page layout objects present in non-optimized form, following converting

3   the at least one instantiation of the static page aspects into the static page

4   layout objects.

1   18.   The method of claim 15 wherein the static page layout

2   objects form a static layer, and wherein the variable print data forms a variable

3   layer.

1   19.   The method of claim 18 wherein the step of storing at least

2   one instantiation of the static page layout objects comprises layer caching the

3   static layer within memory for later re-use.

1   20.   The method of claim 15 wherein a plurality of the static

2   page layout objects together provide a form that includes one or more of

3   images, graphics and text represented in a page description language.

Case 10990654-1